

**REMARKS**

Applicants respectfully request reconsideration and withdrawal of the outstanding Office Action rejections based on the foregoing amendments and following remarks. Claim 14 has been amended and new claims 39 and 40 have been added. No new matter has been added.

**Response to Rejections under 35 U.S.C. § 112**

Claims 1, 4-6, 14-20, 34 and 35 were rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement. The Examiner asserts that only evidence of destroying wildling pine has been presented and thus, the specification would not enable one skilled in the art to use the method to control growth in all coniferous plants. Applicants respectfully disagree.

First, Applicants submit that claims 19 and 20 are directed to controlling coniferous plants belonging to the pinaceae family, i.e. pines. Thus, Applicants respectfully submit that claims 19 and 20 should be acknowledged as being enabled because these claims are limited to the family of plants shown to be effectively controlled according to the presently claimed method in the working examples. According to MPEP § 2164.02,

[f]or a claimed genus, representative examples together with a statement applicable to the genus as a whole will ordinarily be sufficient if one skilled in the art (in view of level of skill, state of the art and the information in the specification) would expect the claimed genus could be used in that manner without undue experimentation.

Applicants submit that two examples of the pinaceae family have been shown to be effectively controlled according to the claimed method. It is not reasonable to expect inventors to test their claimed method on each species of a claimed genus or plants to enable one skilled in the art to practice the method without undue experimentation. It is well within the purview of those skilled in the herbicidal arts to use the claimed method to control coniferous plants to be controlled belong to the pinaceae family. Thus, for the above reasons, Applicants respectfully request that the rejection of claims 19 and 20 be withdrawn.

Further, with regard to the broader rejected claims, Applicants submit that because the specification states that the method is effective in controlling coniferous plants or their parts, including "seedlings, their roots, cones and leaves as well as their seeds and their germinants" page 8, second full paragraph, the specification would enable one skilled in the art to control the growth of coniferous plant growth, e.g. by destroying roots, seeds, germinants, and also to destroy coniferous plants themselves. Thus, based on the specification, one skilled in the art would be enabled to use the claimed method to control coniferous plants at any life stage by applying the herbicides to the plants and/or plant parts to be controlled.

With regard to the assertion that the specification does not enable controlling any coniferous plant besides the wildling pines shown in the working example, Applicants submit that MPEP § 2164.02 states:

The specification need not contain an example if the invention is otherwise disclosed in such manner that one skilled in the art will be able to practice it without an undue amount of experimentation. *In re Borkowski*, 422 F.2d 904, 908, 164 USPQ 642, 645 (CCPA 1970).

The specification provides disclosure regarding the amounts of the herbicides to be used, in what ratios, application methods, and application rates. After reading the present disclosure, it is well within the purview of those skilled in the herbicidal art to optimize the generally disclosed conditions through routine experimentation for a particular intended use that has not been demonstrated in a working example. Applicants submit that there is no requirement to provide specific working examples when there is disclosure regarding the variables enabling one skilled in the art to determine the optimum or workable ranges of the variables through routine experimentation.

Response to Rejections under 35 U.S.C. § 103

Claims 1, 4-6, 14-20, 34 and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Maclaren et al. (Chemical thinning of radiata pine, 1999) in view of Hacker et al. (U.S. 2001/0031704). The Examiner asserts that Maclaren discloses the use of imazapyr for the removal of undesirable *Pinus* tree species, specifically radiata pine. The Examiner acknowledges that Maclaren does not disclose treating coniferous plants with carfentrazone, but asserts that Hacker discloses the herbicidal combination A + B where A is selected from imidazolinones such as imazapyr and B is one or more herbicides including carfentrazone. The Examiner asserts that herbicides A and B are taught as foliar-acting herbicides. The Examiner asserts that it would have been obvious to combine Maclaren and Hacker to further include treating coniferous plants

with carfentrazone because Hacker discloses that imazapyr and carfentrazone in combination allow synergistically increased effects. Applicants respectfully disagree.

Maclarens concludes that chemical thinning was mostly unsuccessful, will not replace mechanical thinning (using a chainsaw), and may only have applications in minor situations (see abstract). Moreover, the only chemicals that Maclarens used were metsulfuron and glyphosate. Neither trial was successful in substantially destroying the trees within a reasonable period of time (see page 21, first paragraph in the section entitled "The Eyrewell Trial: Results"). Metsulfuron, like imazapyr (or chlorsulfuron, mentioned by Maclarens), belong to the group of ALS inhibitors (inhibitors of acetolactate synthase) while others belong to the group of synthetic auxins (2,4-D, triclopyr, picloram), photosystem II inhibitors (hexazinone), or inhibitors of EPSP synthase (glyphosate) or they are inorganic (sodium arsenite, sodium chlorate, ammonium sulphamate):<http://www.hracglobal.com/Publications/ClassificationofHerbicideModofAction/tabid/222/Default.aspx> (copy attached).

Maclarens does not mention PPO-inhibitors (inhibitors of the protoporphyrinogen oxidase) to be suitable, let alone carfentramine or sulfentrazone. Thus, the herbicides mentioned by Maclarens (most of which will not work) have a completely different mode of action and a skilled person will not expect that herbicides having a different mode of action will work at all. In this context it must be noted that other PPO inhibitors, namely pyraflufen and flumioxazin do not provide sufficient control of conifers, even when applied together with the (activity enhancing) imidazolinone herbicide imazapyr. This has been demonstrated by Dr. Zawierucha (see declaration, tables 2 and 2a). Thus, it is not only surprising that the PPO inhibitors sulfentrazone or carfentrazone provide

satisfactory pine control but also that they provide significantly better control than other PPO inhibitors.

Further, the Examiner asserts that the methods of claims 14 and 34 specify the application of carfentrazone and/or imazapyr. Applicants disagree with this interpretation of claim 34 because application of at least one herbicide B selected from the group consisting of sulfentrazone, carfentrazone, and its agriculturally acceptable salts, esters, thioesters, and amides is a required and essential step in the method of claim 1. Claim 34 depends from claim 4, requiring the application of at least one herbicide A which is an imidazolinone herbicide. Claim 14, as amended, likewise depends from claim 4. Thus, at least one herbicide B is essential to the present claims and the combination of herbicides A and B are required by claims 14 and 34.

Maclarens does not mention carfentrazone and does not experiment with imazapyr. Further, because Maclarens discloses that the treatment was unsuccessful, stating that “[t]he overall mortality [using glyphosate] even after two years was disappointing, and substantially lower than that obtained with metsulfuron...”, one of ordinary skill would be taught away from using chemical thinning to control coniferous growth. Further, Maclarens states that “[t]rees which die slowly may become colonized by parasites.” (page 20, left col. 2<sup>nd</sup> paragraph). Thus, it is unlikely that one of ordinary skill would be motivated to use imazapyr to control coniferous plant growth because of its expected lack of effectiveness. Moreover, Table 3 of the present disclosure demonstrates that using imazapyr alone is only 10% effective in controlling plants. Thus, one skilled in the art that was motivated by Maclarens to try imazapyr would obtain equally disappointing results. Even if one were to try the various other chemicals listed

on page 19 of Maclarens or combinations thereof, one would not arrive at the presently claimed method.

Hacker is directed to controlling harmful rice plants consisting of tolerant or resistant mutants or transgenic rice plants that are resistant to herbicides. The only purported synergistic effects shown in Hacker relate to controlling rice plants. As previously established, Hacker does not relate to treating coniferous plants, the *Pinus* species, or the pinaceae family of plants. Thus, it is improper to combine Hacker with Maclarens because coniferous plants are in no way related to the weeds against which carfentrazone and imazethapyr have been shown to be active by Hacker. Because Maclarens does not mention carfentrazone and does not experiment with imazapyr, there would be no motivation to combine Maclarens and Hacker without improper hindsight. Further, the Examiner's reliance on Hacker's disclosure of carfentrazone and imazapyr as foliar-acting herbicides also is not a valid reason to combine these references. The fact that an herbicide can treat rice foliage does not make it obvious to one of ordinary skill that the herbicide would be effective for controlling coniferous plants.

Apart from the fact that Hacker shows that carfentrazone does not have a pronounced herbicide action in comparison with other herbicides tested (see table 5 on page 14 - in fact the herbicide action of the ALS inhibitors bensulfuron-ethyl (B2.3) and pyrazosulfomn-ethyl (B2.8) is significantly higher), the herbicides were tested against grasses, sedges flowers (*Echinocloa* i.e. common barnyard grass; *Cyperus* spp. i.e. sedges; *Aeschynomene*, i.e. mimosa-type flower; *Ipomoea*, i.e. morning glory). Indeed, all of these plants have large leaves and thus are susceptible to foliar acting herbicides. In

contrast thereto, conifers do not have leaves but needles and thus, they should not be very much susceptible to foliar acting herbicides.

Thus, a skilled person would not have considered the teaching of Hacker when conceiving the present invention. Applicants therefore submit that the combination of Hacker and Maclarens is improper.

Moreover, the negative results reported by Maclarens further demonstrate the surprising and unexpected nature of the presently claimed method. Because the present invention is based on the surprising finding that coniferous plants can be controlled by applying an effective amount of sulfentrazone or carfentrazone or a suitable salt or derivative thereof to coniferous plants to be controlled, and Maclarens fails to demonstrate effective treatment using any herbicides, Applicants submit that Maclarens actually supports the non-obviousness and inventive nature of the present claims.

Finally, Applicants submit that Maclarens's failed attempts to effective control and subsequent suggestion to try "new" and undeveloped herbicides that may be "far more efficacious than those currently existing" (last paragraph on page 22 of Maclarens) does not render obvious the presently claimed method.

In view of the above, Applicants submit that the present claims are not rendered obvious by the cited art. Applicants respectfully request that the rejections be withdrawn and the claims be allowed.

New Claims

New claims 39 and 40 have been added to define further embodiments of the invention. Claim 39 is supported by the disclosure on page 2, lines 7-9 and page 13, lines 33-35, as well as the working examples. Claim 40 is supported by claim 1.

**Conclusions**

In view of the above amendments and remarks hereto, Applicants believe that all of the Examiner's rejections set forth in the September 3, 2009 Office Action have been fully overcome and that the present claims fully satisfy the patent statutes. Applicants, therefore, believe that the application is in condition for allowance.

The Director is authorized to charge any fees or overpayment to Deposit Account No. 02-2135.

The Examiner is invited to telephone the undersigned if it is deemed to expedite allowance of the application.

Respectfully submitted,

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Enclosure: copy of Herbicide Resistance Action Committee website